



**Dr. Helen M. Blau, Ph.D.**, is the Donald E. and Delia B. Baxter Professor, the Director of the Baxter Laboratory for Stem Cell Biology in the Department of Microbiology and Immunology and a member of the new Institute of Stem Cell Biology and Regenerative Medicine at Stanford University School of Medicine. Professor Blau's research area is in cell and developmental biology. She has had a longstanding interest in stem cell biology and cell specialization, and is especially well known for her research demonstrating plasticity of the differentiated state. Her muscle heterokaryon experiments proved that silent muscle genes can be activated in diverse adult human specialized cells and that the differentiated state is dynamic, ongoing, and dictated by the balance of regulators at any given time. This finding, two decades ago, has been borne out by the recent generation by Yamanaka of induced pluripotent stem cells (iPS) by the introduction of four genes into human somatic cells. Her laboratory is also known for their development of innovative technologies including: developing gene therapy tools, monitoring protein-protein interactions, imaging bioluminescence of beta-galactosidase activity in live mice, and analyzing stem cell behavior dynamically by time lapse microscopy in bioengineered niches. A major focus of her laboratory is the elucidation of the molecular nature of niche environments that affect stem cell self-renewal (muscle, hematopoietic, pancreatic and cancer stem cells), pluripotency and function *in vivo*, and their clinical applications. Recent work in her lab is directed toward discerning the elusive regulatory mechanisms that lead to the generation of iPS cells using heterokaryons.

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